

SYSTEM AND PROCESS FOR REDUCING IMPURITIES

ABSTRACT OF THE DISCLOSURE

An impurity gettering device can be installed between a source and a reactor to reduce an impurity from a fluid before it reaches the reactor. More particularly, the impurity gettering device can getter an inorganic, polar, hydrogen-containing impurity (e.g., H_2O , NH_3 , etc.) from a halogen-containing fluid (e.g., a fluorine-containing liquid or gas) by forming ligands to a metal-containing compound to form a complex. In one example, a fluid source may include HF and H_2O , which can flow through the impurity getting device that includes COF_2 . The COF_2 can getter the H_2O and form $CoF_2 \cdot ZH_2O$, where Z is an integer. The fluid may become anhydrous HF that can be processed by a reactor, such as an electrolytic cell. By removing H_2O before the fluid reaches the electrolytic cell, adverse effects of H_2O , such as consumption of a carbon anode, particle generation, etc. can be reduced.